



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5 CHICAGO REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605



Date: 10/2/2017

Subject: Review of Region 5 Data for U.S. Steel - Minntac Tailings Basin Area Facility

To: Water Division, WECA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

From: Amanda Wroble, Chemist
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with the EPA QA/G-8 *Guidance on Environmental Data Verification and Data Validation* and the U.S. EPA Region 5 RMD QMP, CRL performs data verification on all the data generated internally. CRL does not perform data validation or quality assessment procedures.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X _____

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: U.S. Steel - Minntac Tailings Basin Area Facility

_____/_____/_____
Data Coordinator and Date Transmitted

Analyses included in this report:

Metals ICP-MS (w)



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: U.S. Steel - Minntac Tailings Basin Area Facility
Project Number: 02DM17
Project Manager: Dean Maraldo

Reported:
Oct-02-17 16:21

ANALYSIS CASE NARRATIVE

GENERAL INFORMATION

CRL received water samples for trace metals analysis by inductively coupled plasma-mass spectrometry (ICP-MS) on September 14, 2017. The assigned work order(s) and sample numbers to which this narrative applies are listed below:

Work Order (number of samples)	Batch Number
1709003 (16)	B17I021

The designated analyst for these samples, Amanda Wroble, can be reached at 312.353.0375. All holding times were met.

The samples were digested using CRL SOP METALS025, Rev. 3 (EPA Method 200.2) and analyzed using CRL SOP METALS001, Rev. 7 (EPA Method 200.8/SW-846 Method 6020B).

SAMPLE ANALYSIS AND RESULTS

The data reported herein meet the requirements referenced in the SOP used for analysis and any laboratory specifications stated in the *Quality Assurance Project Plan/Sampling Plan for Environmental Compliance Assessment for U.S. Steel – Minntac Tailings Basin Area Facility* dated August 2017 with a few minor exceptions. Barium was reported from ICP-MS instead of ICP-AES; and chromium, manganese, and molybdenum were reported down to 1.0 µg/L, which was lower than reporting limits specified in the QAPP.

Manganese results for multiple samples exceeded the highest calibration point (500 µg/L). Linearity was demonstrated up to 5 mg/L within the run. Manganese results for these samples that were less than the linearity check were reported from the undiluted samples. The manganese result that exceeded the linearity check (1709003-09) was reported from a fivefold dilution.

All analytes were reported from Run 1 with the exception of arsenic, which was reported from Run 2 due to failure of low level quality control audits (laboratory control blank and reporting limit check) for arsenic.

Several analytes were present in the field blank above their respective method detection limits (MDL). No flags were applied to the data, as CRL has no audit limits for field quality control samples.



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QUALITY CONTROL

All quality control audits were within CRL limits for the requested analytes or did not result in qualification of the data.



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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01	1709003-01	Water	Sep-12-17 09:57	Sep-14-17 13:26
S02	1709003-02	Water	Sep-12-17 10:23	Sep-14-17 13:26
S03	1709003-03	Water	Sep-12-17 10:50	Sep-14-17 13:26
S04	1709003-04	Water	Sep-12-17 11:08	Sep-14-17 13:26
D05	1709003-05	Water	Sep-12-17 11:08	Sep-14-17 13:26
S06	1709003-06	Water	Sep-12-17 11:30	Sep-14-17 13:26
S07	1709003-07	Water	Sep-12-17 11:51	Sep-14-17 13:26
S08	1709003-08	Water	Sep-12-17 14:03	Sep-14-17 13:26
S09	1709003-09	Water	Sep-12-17 15:00	Sep-14-17 13:26
S10	1709003-10	Water	Sep-12-17 15:15	Sep-14-17 13:26
S11	1709003-11	Water	Sep-13-17 09:44	Sep-14-17 13:26
S12	1709003-12	Water	Sep-13-17 09:49	Sep-14-17 13:26
S13	1709003-13	Water	Sep-13-17 09:55	Sep-14-17 13:26
S14	1709003-14	Water	Sep-13-17 10:23	Sep-14-17 13:26
S15	1709003-15	Water	Sep-13-17 11:10	Sep-14-17 13:26
R16	1709003-16	Water	Sep-13-17 12:52	Sep-14-17 13:26



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Metals by ICP-MS using EPA 200.8 (modified)

US EPA Region 5 Chicago Regional Laboratory

S01 (1709003-01)

Matrix: Water

Sampled: Sep-12-17 09:57

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	2.64			1.00	"	"	"	"	Sep-21-17
Barium	31.8			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	711			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S02 (1709003-02)

Matrix: Water

Sampled: Sep-12-17 10:23

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.11			1.00	"	"	"	"	Sep-21-17
Barium	19.7			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	20.2			1.00	"	"	"	"	"
Molybdenum	1.17			1.00	"	"	"	"	"
Nickel	1.15			1.00	"	"	"	"	"



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Metals by ICP-MS using EPA 200.8 (modified)

US EPA Region 5 Chicago Regional Laboratory

S02 (1709003-02)

Matrix: Water

Sampled: Sep-12-17 10:23

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Selenium	U			2.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S03 (1709003-03)

Matrix: Water

Sampled: Sep-12-17 10:50

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	18.2			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	4.21			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	2340			1.00	"	"	"	"	"
Molybdenum	2.05			1.00	"	"	"	"	"
Nickel	3.95			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S04 (1709003-04)

Matrix: Water

Sampled: Sep-12-17 11:08

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	40.0			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	1.26			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"



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S04 (1709003-04)

Matrix: Water

Sampled: Sep-12-17 11:08

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Lead	U			0.50	ug/L	1	B171021	Sep-20-17	Sep-21-17
Manganese	1530			1.00	"	"	"	"	"
Molybdenum	3.87			1.00	"	"	"	"	"
Nickel	2.51			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

D05 (1709003-05)

Matrix: Water

Sampled: Sep-12-17 11:08

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	40.4			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	1.23			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	1540			1.00	"	"	"	"	"
Molybdenum	3.93			1.00	"	"	"	"	"
Nickel	2.47			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"



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S06 (1709003-06)

Matrix: Water

Sampled: Sep-12-17 11:30

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	22.3			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	5.31			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	1130			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	3.45			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S07 (1709003-07)

Matrix: Water

Sampled: Sep-12-17 11:51

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.03			1.00	"	"	"	"	Sep-21-17
Barium	U			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	117			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"



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S07 (1709003-07)

Matrix: Water

Sampled: Sep-12-17 11:51

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Zinc	U			10.0	ug/L	1	B17I021	Sep-20-17	Sep-21-17

S08 (1709003-08)

Matrix: Water

Sampled: Sep-12-17 14:03

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	22.9			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	0.64			0.50	"	"	"	"	"
Copper	2.05			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	217			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	2.32			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S09 (1709003-09)

Matrix: Water

Sampled: Sep-12-17 15:00

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	14.0			1.00	"	"	"	"	Sep-21-17
Barium	125			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	3.08			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	9980			5.00	"	5	"	"	Sep-21-17
Molybdenum	U			1.00	"	1	"	"	Sep-21-17



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S09 (1709003-09)

Matrix: Water

Sampled: Sep-12-17 15:00

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Nickel	2.59			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S10 (1709003-10)

Matrix: Water

Sampled: Sep-12-17 15:15

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	10.8			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	0.53			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	330			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	2.37			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S11 (1709003-11)

Matrix: Water

Sampled: Sep-13-17 09:44

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Arsenic	1.52			1.00	"	"	"	"	Sep-21-17
Barium	27.2			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	0.75			0.50	"	"	"	"	"



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S11 (1709003-11)

Matrix: Water

Sampled: Sep-13-17 09:44

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Copper	U			2.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Lead	U			0.50	"	"	"	"	"
Manganese	522			1.00	"	"	"	"	"
Molybdenum	7.52			1.00	"	"	"	"	"
Nickel	2.18			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S12 (1709003-12)

Matrix: Water

Sampled: Sep-13-17 09:49

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	2.12			1.00	"	"	"	"	Sep-21-17
Barium	80.6			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	3.01			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	1980			1.00	"	"	"	"	"
Molybdenum	16.1			1.00	"	"	"	"	"
Nickel	2.18			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

Water Division, WECA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: U.S. Steel - Minntac Tailings Basin Area Facility
Project Number: 02DM17
Project Manager: Dean Maraldo

Reported:
Oct-02-17 16:21

Metals by ICP-MS using EPA 200.8 (modified)

US EPA Region 5 Chicago Regional Laboratory

S13 (1709003-13)

Matrix: Water

Sampled: Sep-13-17 09:55

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.89			1.00	"	"	"	"	Sep-21-17
Barium	37.9			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	2.41			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	2160			1.00	"	"	"	"	"
Molybdenum	9.45			1.00	"	"	"	"	"
Nickel	2.24			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

S14 (1709003-14)

Matrix: Water

Sampled: Sep-13-17 10:23

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B17I021	Sep-20-17	Sep-21-17
Arsenic	1.21			1.00	"	"	"	"	Sep-21-17
Barium	10.7			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	76.2			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"



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Project: U.S. Steel - Minntac Tailings Basin Area Facility
Project Number: 02DM17
Project Manager: Dean Maraldo

Reported:
Oct-02-17 16:21

Metals by ICP-MS using EPA 200.8 (modified)

US EPA Region 5 Chicago Regional Laboratory

S14 (1709003-14)

Matrix: Water

Sampled: Sep-13-17 10:23

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Zinc	U			10.0	ug/L	1	B171021	Sep-20-17	Sep-21-17

S15 (1709003-15)

Matrix: Water

Sampled: Sep-13-17 11:10

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Arsenic	1.13			1.00	"	"	"	"	Sep-21-17
Barium	33.7			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	47.4			1.00	"	"	"	"	"
Molybdenum	U			1.00	"	"	"	"	"
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"

R16 (1709003-16)

Matrix: Water

Sampled: Sep-13-17 12:52

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Antimony	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Arsenic	U			1.00	"	"	"	"	Sep-21-17
Barium	U			10.0	"	"	"	"	Sep-21-17
Beryllium	U			1.00	"	"	"	"	"
Cadmium	U			1.00	"	"	"	"	"
Chromium	U			1.00	"	"	"	"	"
Cobalt	U			0.50	"	"	"	"	"
Copper	U			2.00	"	"	"	"	"
Lead	U			0.50	"	"	"	"	"
Manganese	U			1.00	"	"	"	"	"



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Project: U.S. Steel - Minntac Tailings Basin Area Facility
Project Number: 02DM17
Project Manager: Dean Maraldo

Reported:
Oct-02-17 16:21

Metals by ICP-MS using EPA 200.8 (modified)

US EPA Region 5 Chicago Regional Laboratory

R16 (1709003-16)

Matrix: Water

Sampled: Sep-13-17 12:52

Received: Sep-14-17 13:26

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Molybdenum	U			1.00	ug/L	1	B171021	Sep-20-17	Sep-21-17
Nickel	U			1.00	"	"	"	"	"
Selenium	U			2.00	"	"	"	"	"
Silver	U			1.00	"	"	"	"	"
Thallium	U			0.50	"	"	"	"	"
Zinc	U			10.0	"	"	"	"	"



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Reported:
Oct-02-17 16:21

Notes and Definitions

U Not Detected
NR Not Reported
Q QC limit Exceeded